

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A liquid ejection control method for controlling ejection of liquid from nozzles arranged in a predetermined feed direction, the nozzles for ejecting liquid onto a medium that is fed in said feed direction, comprising the following steps:

a step of detecting a portion of said medium that is positioned on an upstream side in said feed direction; and

~~after detecting the portion of said medium that is positioned on an upstream side in said feed direction, a step of ejecting liquid from a predetermined number N of nozzles from among a plurality of nozzles that are located in opposition to a groove provided in a platen;~~

~~wherein N is always greater than 0 and wherein N is decreased in accordance with an increase in a total feed amount of the medium after the portion of said medium that is positioned on the upstream side in said feed direction has been detected~~

a step of making a nozzle located most upstream in said feed direction, and nozzles within a predetermined distance in said feed direction from the most upstream nozzle, not eject liquid based on a result of the detection;

a step of moving a carriage in a main-scanning direction, wherein the most upstream nozzle and nozzles within said predetermined distance in said feed direction from a most upstream nozzle are kept from ejecting liquid and other nozzles eject liquid;

a step of feeding said medium in said feed direction;

a step of increasing said predetermined distance; and

a step of moving said carriage in said main-scanning direction, wherein the most upstream nozzle and nozzles within the increased predetermined distance in said feed direction from said most upstream nozzle are kept from ejecting liquid and other nozzles eject liquid.

2. (cancelled).

3. (currently amended): A liquid ejection control method according to claim 1, wherein after said portion of said medium that is positioned on the upstream side in said feed direction has been detected,

~~a the step of feeding said medium in said feed direction, and a the step of increasing said predetermined distance, and the step of moving an ejection head provided with said plurality of nozzles~~ said carriage and ejecting liquid onto said medium are repeated a predetermined number of times, and then ejection of liquid onto said medium is ended.

4. (cancelled).

5. (previously presented): A liquid ejection control method for controlling ejection of liquid from nozzles arranged in a predetermined feed direction, the nozzles for ejecting liquid onto a medium that is fed in said feed direction, comprising the following steps:

a step of detecting a portion of said medium that is positioned on an upstream side in said feed direction; and

a step of making a nozzle located most upstream in said feed direction, and nozzles within a predetermined distance in the feed direction from the most upstream nozzle, not eject liquid based on a result of said detection;

wherein said predetermined distance is increased in correspondence with an increase of an aggregate paper feed amount of said medium after said portion of said medium that is positioned on the upstream side in said feed direction has been detected;

wherein the paper feed amount of said medium is increased after said portion of said medium that is positioned on the upstream side in said feed direction has been detected; and

wherein said predetermined distance is an amount obtained by subtracting a predetermined amount from said aggregate paper feed amount.

6. (original): A liquid ejection control method according to claim 5,

wherein, the higher a detection precision for detecting said portion of said medium that is positioned on the upstream side in said feed direction is, the smaller said predetermined amount is.

7. (original): A liquid ejection control method according to claim 6,
wherein said portion of said medium that is positioned on the upstream side in said feed direction is detected by determining whether or not an end, among ends of said medium, positioned on the upstream side in said feed direction has passed a predetermined position in said feed direction.

8. (original): A liquid ejection control method according to claim 7,
wherein whether or not said end, among the ends of said medium, positioned on the upstream side in said feed direction has passed said predetermined position in said feed direction is determined by determining whether or not said medium is present in a direction of travel of light that is emitted from a light emitting member for emitting light toward a medium support section, based on an output value of a light-receiving sensor for receiving the light that has been emitted by said light emitting member.

9. (original): A liquid ejection control method according to claim 8,
wherein said light is emitted from said light emitting member toward a plurality of different positions in a main-scanning direction, each of said plurality of different positions being said predetermined position in said feed direction on said medium support section, and
wherein whether or not said medium is present in said direction of travel of said light is determined based on output values of said light-receiving sensor that has received said light having been emitted.

10. (original): A liquid ejection control method according to claim 9,
wherein, while making a moving member that is provided with said light emitting member and said light-receiving sensor and that can be moved in the main-scanning direction move in the main-scanning direction,

said light is emitted from said light emitting member toward the plurality of different positions in the main-scanning direction, each of said plurality of different positions being said predetermined position in said feed direction on said medium support section, and

whether or not said medium is present in said direction of travel of said light is determined based on the output values of said light-receiving sensor that has received said light having been emitted.

11. (original): A liquid ejection control method according to claim 10,
wherein said moving member is provided with said ejection head, and
wherein, while making said moving member move in the main-scanning direction,
said light is emitted from said light emitting member toward the plurality of different positions in the main-scanning direction, each of said plurality of different positions being said predetermined position in said feed direction,

whether or not said medium is present in said direction of travel of said light is determined based on the output values of said light-receiving sensor that has received said light having been emitted, and

liquid is ejected onto said medium from the nozzles provided in said ejection head.

12. (original): A liquid ejection control method according to claim 11, wherein liquid is ejected with respect to an entire surface of said medium.

13. (original): A liquid ejection control method according to claim 12, wherein said liquid is ink.

14. (currently amended): A liquid ejection control method according to claim 1, wherein said portion of said medium that is positioned on the upstream side in said feed direction is detected by determining whether or not said portion of said medium on the upstream side in said feed direction has passed a predetermined position in said feed direction, and wherein, if the number of said nozzles that are ~~made not to eject said liquid~~ within said predetermined distance exceeds a number of predetermined nozzles among said plurality of nozzles, then the operation for ejecting liquid onto said medium is ended.

15. (currently amended): A liquid ejection control method according to claim 14, wherein when it is determined that said portion of said medium on the upstream side in said feed direction has passed a predetermined position in said feed direction, liquid is not ejected from nozzles other than those nozzles within said predetermined ~~number N of nozzles~~ distance among said plurality of nozzles.

16. (cancelled)

17. (previously presented): A liquid ejection control method for controlling ejection of liquid from nozzles arranged in a predetermined feed direction, the nozzles for ejecting liquid onto a medium that is fed in said feed direction, comprising the following steps:

a step of detecting a portion of said medium that is positioned on an upstream side in said feed direction; and

a step of making a nozzle located most upstream in said feed direction, and nozzles within a predetermined distance in the feed direction from the most upstream nozzle, not eject liquid based on a result of said detection;

wherein said predetermined distance is increased in correspondence with an increase of an aggregate paper feed amount of said medium, after said portion of said medium that is positioned on the upstream side in said feed direction has been detected, to increase a number of said nozzles that are made not to eject said liquid;

wherein said portion of said medium that is positioned on the upstream side in said feed direction is detected by determining whether or not said portion of said medium on the upstream side in said feed direction has passed a predetermined position in said feed direction;

wherein, if the number of said nozzles that are made not to eject said liquid exceeds a number of predetermined nozzles among said plurality of nozzles, then the operation for ejecting liquid onto said medium is ended;

wherein when it is determined that said portion of said medium on the upstream side in said feed direction has passed a predetermined position in said feed direction, liquid is not ejected from nozzles other than said predetermined nozzles among said plurality of nozzles;

wherein said predetermined nozzles are in opposition to a recessed section of a medium support section that is provided with said recessed section and that is for supporting said medium; and

wherein said predetermined distance is an amount that is obtained by subtracting a predetermined amount from said aggregate paper feed amount.

18. (original): A liquid ejection control method according to claim 17,
wherein, the higher a detection precision for detecting said position, in said feed direction, of said portion on the upstream side in said feed direction is, the smaller said predetermined amount is.

19. (currently amended): A liquid ejection apparatus for ejecting liquid onto a medium, comprising:

a plurality of nozzles, arranged in a predetermined feed direction, for ejecting the liquid;
a movable ejection head provided with said plurality of nozzles; and

a feed mechanism for feeding the medium in said feed direction;

a controller which,

~~based on a result of a detection of a portion of said medium that is positioned on an upstream side in said feed direction, makes a predetermined number N of nozzles eject liquid, from among a plurality of nozzles that are located in opposition to a platen;~~

~~wherein N is always greater than 0 and wherein N is decreased in accordance with an increase in a total feed amount of the medium after the portion of said medium that is positioned on the upstream side in said feed direction has been detected~~

makes a nozzle located most upstream in said feed direction, and nozzles within a predetermined distance in said feed direction from a most upstream nozzle, not eject liquid based on a result of a detection of a portion of said medium that is positioned in an upstream side in said feed direction,

moves a carriage, comprising the ejection head, in a main-scanning direction, wherein the most upstream nozzle and nozzles within said predetermined distance in said feed direction from the most upstream nozzle are kept from ejecting liquid and other nozzles eject liquid,

feeds said medium in said feed direction,

increases said predetermined distance, and

moves said carriage in said main scanning direction, wherein the most upstream nozzle and nozzles within the increased distance in said feed direction from said most upstream nozzle are kept from ejecting liquid and other nozzles eject liquid.